

**APPARATUS AND METHOD FOR PHASE SYNCHRONIZATION  
CONTROL IN RZ OPTICAL TRANSMITTER**

**Abstract**

An optical RZ transmitter comprises an optical signal source and a pair of 5 electro-optical modulators in tandem, one arranged to receive a NRZ electrical data signal and the other a clock signal at the data rate of the data signal. The phase difference between the data signal and the clock signal is controlled by adding a first dither signal to a bias signal applied to the modulator receiving the data signal, and a second dither signal, having a different frequency, to the phase difference. The 10 amplitude of variations in the power of the optical output signal corresponding to cross-modulation of the first and second dither signals is detected and the phase difference is controlled in response to the detected amplitude.